

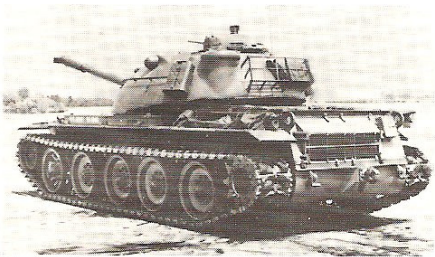
# MODERNIZATION PACKAGES FOR FIGHTING VEHICLES



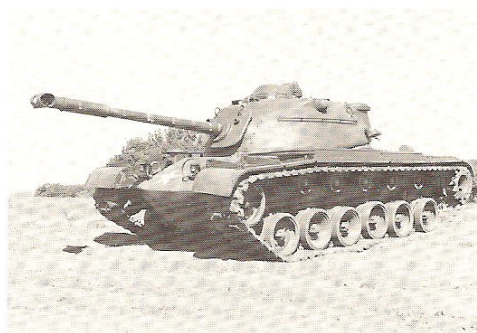
SUPER M60 MAIN BATTLE TANK



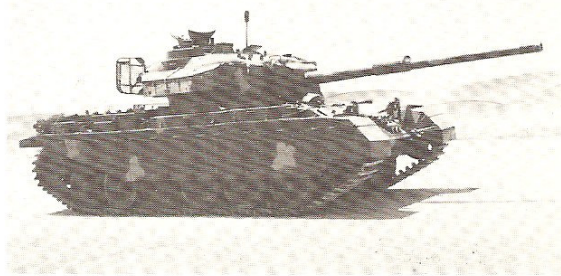
AMX-30 TANK RETROFIT



T-SERIES TANK RETROFIT



SIMPLIFIED M47/M48 TANK RETROFIT



HIGH PERFORMANCE CENTURION BATTLE TANK

## TANK MODERNIZATION, AN AFFORDABLE OPTION.

Fully tested modernization packages are available for upgrading current battle-tested combat vehicles. These affordable options provide a vehicle with performance comparable to the most modern new main battle tanks. These options include:

- Increased Performance Power Packs
- Higher Capacity Final Drives
- Hydropneumatic Suspension Systems
- Fire Control Systems
- Turret and Weapon Stabilization
- M68, 105mm Gun
- Passive Night Vision
- Fire Suppression Systems
- Nuclear, Biological & Chemical Protection
- Advanced Applique Armor



# MODERNIZATION PACKAGES FOR FIGHTING VEHICLES

## SELECT POWER

To upgrade tank performance, Teledyne developed a "family" of air-cooled diesel tank engines. Horsepower selections range from 750 to 1200 gross horsepower. Special features include:

- Air Cooling
- Submersible
- Dust Detector
- Low Voltage Protection
- Smoke Generator
- 650 Ampere Oil-Cooled Alternator
- Logistic Commonality

The new Teledyne Super M60 Battle Tank is powered by the AVDS-1790-9A Series engine. This high-performance diesel produces 60% more horsepower as compared to the standard 750-horsepower M60 engine.

## HIGH PERFORMANCE CENTURION MARK SERIES BATTLE TANK

Teledyne technology and modernization packages were used to upgrade the performance of this battle-tested Centurion Tank. Modernization packages included AVDS-1790 Series 750-horsepower diesel power pack, Full-Solution Fire Control System, Weapon/Turret Control and Stabilization System, Hydropneumatic Suspension System and Passive Night Vision.

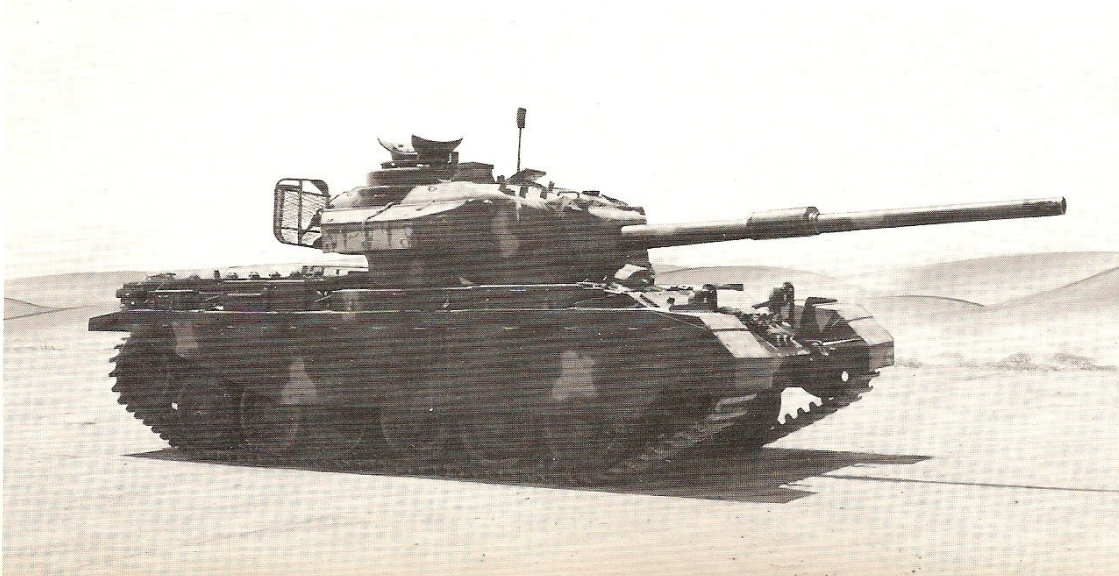
## TRANSMISSIONS

Transmissions are selected to match engine performance. The CD-850 Series transmission currently used in the M60 tank, is matched to 750-900 horsepower engines for powering tanks up to 60 tons. The RK-304 Model transmission is matched to 750-1200 horsepower engines for tanks up to 62 tons.

## ADVANCED APPLIQUE ARMOR

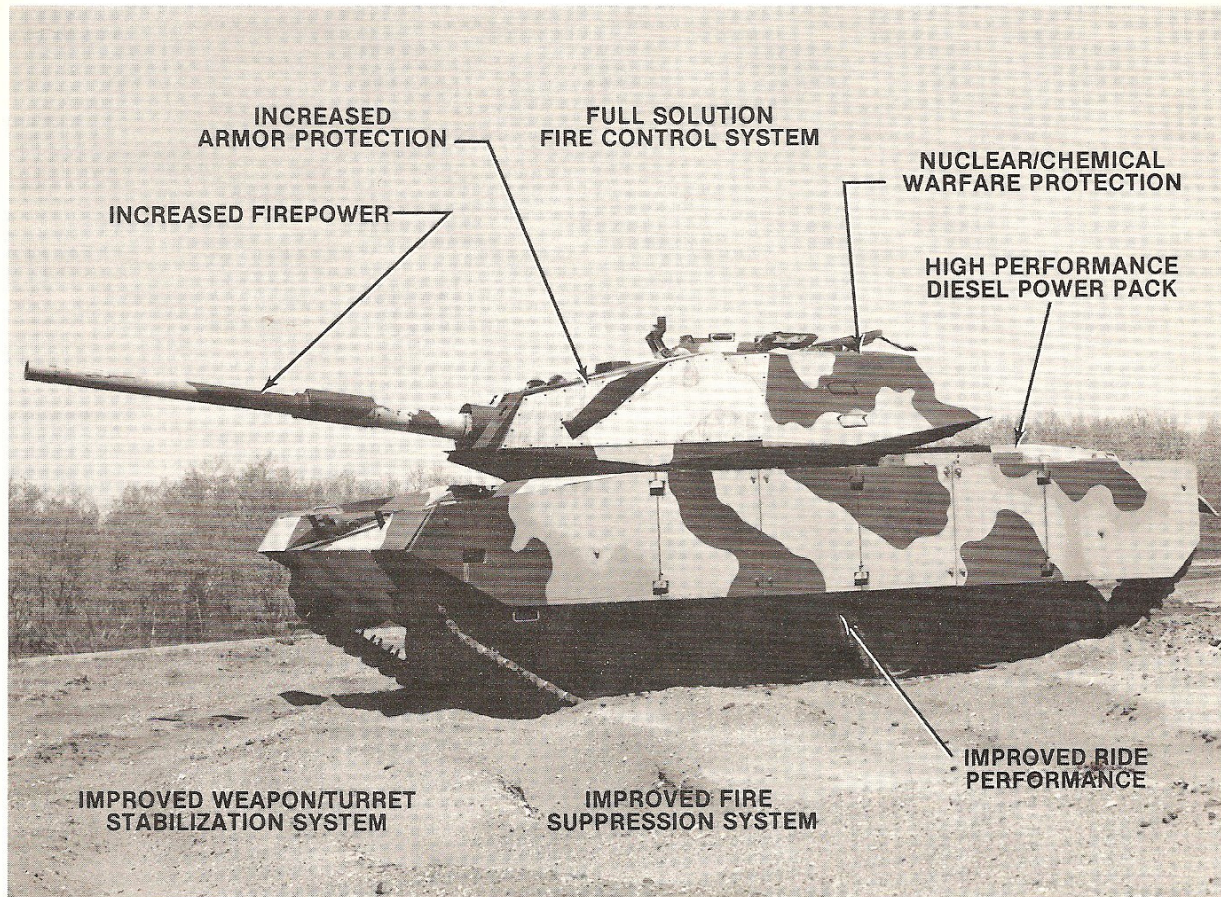
Teledyne's new spaced applique armor packages offer improved protection against the threat of high velocity kinetic energy weapons, shaped charge type warheads and burst type projectiles. Special high-hardness steel plates coupled with ceramic modules, provide added protection and a new ballistic shape to the turret, gun mantlet and hull. Composite armor side skirts provide increased protection to the hull from the threat of shaped-charge warheads and missiles.

The Super M60 Modernization Package includes a new low-silhouette commander's cupola.





# WHAT TANK MODERNIZATION PACKAGES ARE ALL ABOUT . . .



## **SUPER M60 MAIN BATTLE TANK**

Modernization packages include 1200-horsepower power pack, high capacity final drive, hydropneumatic suspension, weapon stabilization, laser tank fire control, I2 passive night vision, Halon fire suppression, applique armor and nuclear, biological and chemical protection.

## **HYDROPNEUMATIC SUSPENSION SYSTEM**

Increased vehicle performance and improved quality of ride over rough terrain is provided by Hydropneumatic Suspension Units. The units replace conventional torsional bar systems. Hydropneumatic Suspension Units provide:

- Increased Road Wheel Travel
- Improved Damping
- Non-Linear Spring Rate
- Get-Home Capability

- Reduced Silhouette
- Improved Survivability
- Improved Crew Comfort
- Increased Combat Effectiveness

Hydropneumatic Suspension Systems have been successfully installed in M60, M48, M47 and Centurion Mark Series Battle Tanks.

During rough terrain running tests, the new Super M60 averaged 38km/h as compared to the standard M60 speed of 14km/h.



### **FIRE CONTROL SYSTEMS**

Teledyne tank modernization packages include custom selection of the most modern full solution fire control systems. A selection of completely developed systems is available for integration into each tank system having laser ranging and either I<sup>2</sup> or thermal night sights. These fully-integrated systems are selected for dependability, cost-effectiveness and adaptability to a particular vehicle and complement the other Teledyne modernization options thereby increasing survivability and first round hit capabilities.

### **NUCLEAR, BIOLOGICAL, CHEMICAL PROTECTION (NBC)**

- Survivability on the modern battlefield is increased with installation of Nuclear, Biological and Chemical (NBC) Packages. In a Nuclear, Biological, Chemical combat environment, the NBC system automatically pressurizes the crew compartment with filtered air and allows safe shirtsleeve crew operation. During routine operations, the system provides clean, filtered breathing air to the ventilated face pieces of the tank crew.

### **FIRE SUPPRESSION SYSTEM**

Recent wars have revealed the hazards of explosion and fire occurring in armored vehicles when being hit by projectiles or land mines. The Halon Fire Suppression System is capable of suppressing and extinguishing fire as a result of a hit, before any appreciable damage can be caused. The system is an ultra-fast automatic system designed and built for utmost reliability under the toughest field conditions. The increased survivability provided by the system contributes to increased combat effectiveness in the same manner as increased mobility and firepower.

### **AVDS-1790 SERIES**

#### **AIR-COOLED DIESEL TANK ENGINE**

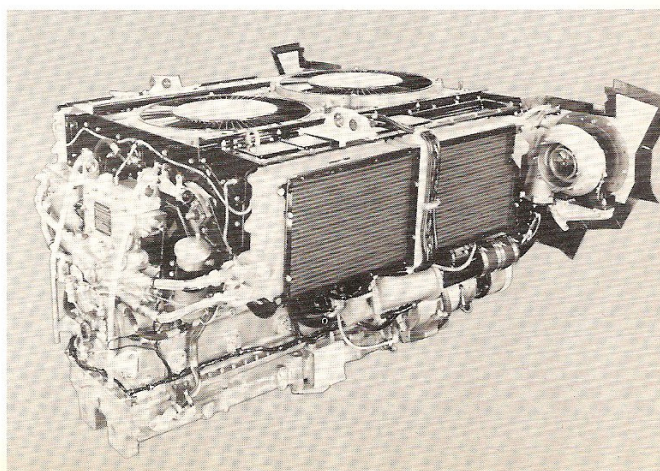
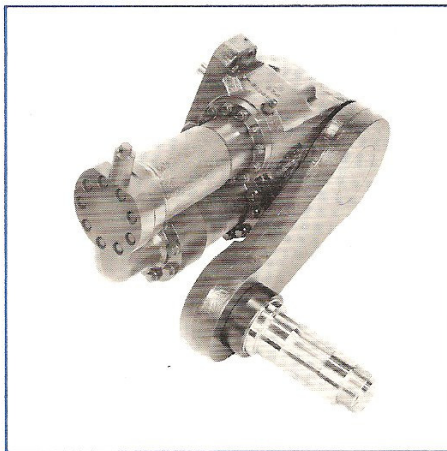
High performance diesel tank engines are available in a selection of horsepower ranging from 750 to 1200. All Teledyne diesels feature air cooling and a high power-to-weight ratio. They are "battle tested" and offer a cost-effective opportunity to uppower fighting vehicles.

### **WEAPON/TURRET CONTROL AND STABILIZATION SYSTEM (W/TCSS)**

Advanced technologies permit adaptation of improved W/TCSS components to most tank gun/turret drive systems. These add-on W/TCSS components complement the improved performance of modernized vehicles. The new, faster acting stabilization system installed on a tank equipped with Hydropneumatic Suspension Units (HSU), provides the ability to fire-on-the-move while going cross-country with an 80% hit probability at 1000 meters.

#### **TYPICAL HYDROPNEUMATIC SUSPENSION UNIT (HSU)**

One HSU is required for each road wheel station. As a replacement system for conventional torsional bar suspension, the units are easily assembled on new vehicles or retrofitted to older tank models. The "soft-ride" characteristic of HSU improves target tracking and increases first round hit probabilities without reducing speed.





# TYPICAL PERFORMANCE IMPROVEMENTS

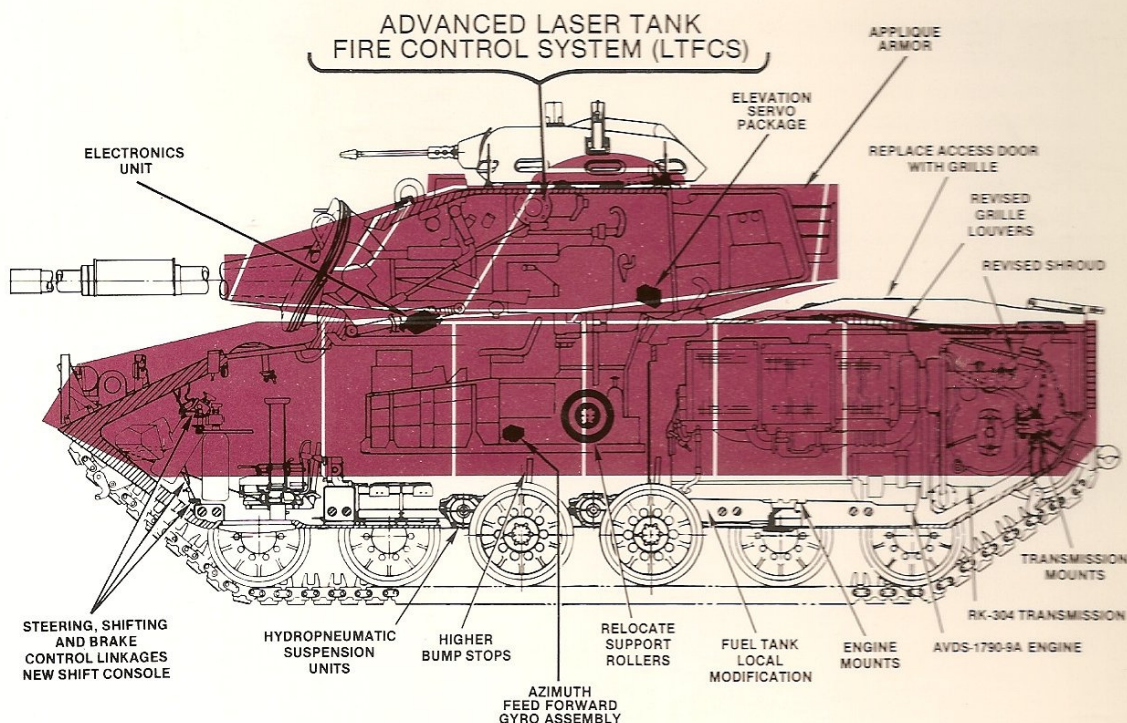
Teledyne has the technology and equipment to modernize or upgrade older, battle-tested tanks to provide performance comparable with most new Main Battle Tanks. As an affordable option, Teledyne has designed modernization packages for the M41, M47, M48, M60, AMX-30, Centurion and T-Series battle tanks. In addition, special modernization packages are available for both the M51 and M88 Recovery Vehicles. These packages are comparable to the M60 Modernization Package.

## M60 TANK UPGRADE

The Super M60 is the modernized version of the M60A1. Modernization is the most cost effective method for increasing the M60's combat effectiveness on the modern battlefield.

- Top speed increased from (48 to 72 Km/h)
- Acceleration improved (0-32 Km/h) from 15 to 8.8 seconds
- Automatic laser ranging
- Time to fire reduced from 6 to 2 seconds
- 188% improvement in defensive combat effectiveness
- 260% improvement in offensive combat effectiveness

## SUPER M60 MAIN BATTLE TANK WITH APPLIQUE ARMOR PACKAGE





# EXPERIENCE

Teledyne has fifty years experience in the design, build and operation of combat vehicles. Using modern equipment and advanced technologies, Teledyne has designed a selection of Modernization Packages for the affordable upgrading of older, battle-tested tracked vehicles. Some examples of this diversified expertise are shown below.

## HIGH MOBILITY AGILITY VEHICLE (HIMAG)

HIMAG is a full-up tank test bed designed and tested for the U.S. Army. It is a sophisticated test system for state-of-the-art fire control systems, weapon stabilization, hypervelocity weapons, hydropneumatic suspension, integrated data collection and 1500-horsepower air-cooled diesel power pack.

## REPUBLIC OF KOREA INDIGENOUS TANK (ROKIT)

Designed to exact specifications, ROKIT features protective flat-plate armor, advanced fire control and stabilization systems, 105mm gun, air-cooled diesel power pack, reduced ground pressure and low silhouette.

## HIGH PERFORMANCE CENTURION TANK

Modernization Packages are designed to upgrade the performance of Centurion Mark Series battle tanks. Packages include air-cooled diesel power pack, hydropneumatic suspension, advanced fire control and stabilization systems and applique armor.

## AMX-30 TANK RETROFIT

To upgrade the performance and at the same time provide satisfactory cooling for desert operations, the Modernization Package includes an air-cooled diesel power pack, new hydropneumatic suspension, advanced fire control and stabilization systems, fire suppression system and applique armor which can be applied to further improve combat effectiveness.

## SUPER M60 BATTLE TANK

Modernization packages are designed to upgrade the performance of this battle-proven main battle tank. Applique armor provides additional protection against the threat of advanced design weapons. Speed and agility are improved with installation of 1200-horsepower air-cooled diesel power pack and hydropneumatic suspension. Advanced fire control and stabilization systems provide simplified operation and improved hit probability.

## SIMPLIFIED RETROFIT M47/M48 BATTLE TANKS

Performance is greatly improved by installation of Modernization Packages in both the M47 and M48 Series battle tanks. The simplified approach for modernization includes replacement of the gasoline engine with a new air-cooled diesel power pack.

## T-SERIES TANK MODERNIZATION

Performance of all T-Series battle tanks may be improved with installation of Modernization Packages. These rugged, battle-tested tanks are modernized using air-cooled diesel power packs, automatic transmissions, advanced fire control and stabilization systems.

## HIGH MOBILITY MULTIPURPOSE WHEELED VEHICLE (HMMWV)

Teledyne has designed and built prototypes of a new HMMWV to meet the U.S. Army's multiple mission requirements for a combat, combat support and service support vehicle.

